NAPRA

ZERO RETRIES

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Editor:
Peter Kallio N7ENT
1561 Roland Avenue
Port Orchard, WA 98366

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Packet Conferences to Be Held in Eastern Washington

It has been apparent for a long time that the State of Washington must start planning a high-speed statewide packet network. It goes without saying, that the system we have has never met the needs of the user. In owning a small part of this system, I have to know what direction we are heading so I can be compatible with the rest of the network. A plan that will include all forms of packet needs.

I have been asked to become an Assistant Section Manager for Eastern Washington, and the job description for my position does not really exist. In my discussions with Tom, KC7PH, Section Manager, my duties are to facilitate the growth of digital communications in Eastern Washington. This, of course, does not make me boss. What it does, I hope, is give me a ability to bring together all those that are interested in building a packet network and make packet work, and work well.

So what I will be doing is to bring the networking people together, discuss and come up with a plan. This will start at the Spokane Hamfest in April 4th and 5th, and continue here in Yakima. At the Yakima Hamfest, May 23rd and 24th, I have set aside several times slots for this purpose.

The focus of this conference is two fold. First, we need to educate ourselves in the technical aspects of the networking protocols that could potentially serve as a state wide backbone. Secondly, to start the discussions leading to selecting a network, backbone, locations, hardware (modems, radios and computer), node entry points, etc. for the State of Washington and gateways in and out of State.

There need to be a discussion on how to implement appropriate LAN systems, LAN routers, so as to not to bog down the WAN system. That is, how does a heavily populated area, Seattle - Spokane - Tacoma - etc, install a high level and a low level system and tie them together effectively.

To accomplish the first objective, we need to have papers presented on the following networking configurations; NET/ROM, Rose, TCP/IP, SuperNode and others for which there is a presenter. To enable us to make good choices in the second objective, we would like papers presented high baud rate modems (9600 and above) and radios (and their performance in mountain top locations). We would like to have presenters on DX PacketClusters, TCP/IP, and anything new that I have not heard of. A rough draft of your presentation should be sent to me by April 15th, with the final draft due on May 1st. These will printed in a conference notebook for all who want one. There will be a publication fee, so I will need the list. The final system needs to support AX.25, DX PacketCluster, TCP/IP and other future technology. We need a time line from where we are now, to full implementation.

Other discussion could be frequency usage and coordination, especially in low level networking. Discussions on open and closed network, do we plan a system, or do we just let it evolve, or, part is fixed, like high level network, and the low level systems grow without planning. Should Bulletin Board Systems be part of the networking plan, or separate.

If anyone feels that I have left something out, please let me know. Also if you need an application for the Yakima Hamfest give me a yell.

Dick Umberger N7HHU,1008 S 8th Ave,Yakima, WA 98902
Hm (509) 248.3580Wk (509) 453-8632

NAPRA BoD Meetings Minutes

by John MacDuff, KA7TTY, NAPRA Secretary

Minutes of the NAPRA BOD Meeting Dec. 14, 1991

I. The Board of Directors meeting was called to order 10:24 AM at the BEARS Shack in Renton by President Ken, N7IPB. Also present were Bill, AA6ED, Scott, N7FSP, Peter, WA7FUS, and John, KA7TTY, as well as Tom, N7OEP, and Ken, N7QAN.

II. Treasurer, Peter, WA7FUS, reported a balance of $1496.89 with some outstanding bills yet to be paid for crystals, etc.

III. Tech VP, Scott, N7FSP, reported:
A. K7LZJs DX Cluster link on 220 is being moved because of some problems with voice users on the frequency on which we coordinated him.
B. SEAW is back on the air thanks to the efforts of Tom, N7OEP.
C. The PTN to BALDY link is working out well.
D. The North Sound Cluster is moving to a separate backbone with a link from PTN to the rest of the system.
E. The Alinco DR-1200T, loaned to NAPRA by Joe, KA7DCX, a local Alinco distributer, has been working well on the ALKI to BALDY link since it was installed last month.
Bill, AA6ED, moved that we encourage the Network Clusters to appoint a focal point for management of their cluster and interface with NAPRA. John, KA7TTY, seconded the motion, and it passed. The secretary will draft a note to the node operators and forward it to the BOD for comment before it is sent out.
G. Scott, N7FSP, moved that we extend a 1 year NAPRA membership to Tom, N7OEP, for his help recently getting SEAW back on the air, and his continued help in the future. The motion was seconded and passed. Tom appreciated the offer and said he would consider whether to join NAPRA.
H. TAC and #TAC will be moving to Mack's, W7MSR, QTH sometime about Dec 21st.
J. NAPRA has been notifed by the site owner at SEA and SEAW that we need to install cavities and circulators on our equipment, and provide a time table for completion of this work as soon as possible. There will be more discussion on this later.
K. The question was asked, "Who does NAPRA contact regarding packet in Oregon, OPRA, OPEN, or TOPS? Ken, N7IPB, will contact Chuck, AF7S, from TOPS.
L. Last month Scott, N7FSP, presented the BOD with 2 hand drawn maps of how the user backbone was interconnected in the Puget Sound area, and how the BBS forwarding network was interconnected. He had asked that it not be sent to Hank, W0RLI. Later this past month Bill, AA6ED, sent a copy to Hank as part of his "opening of communications" effort with Hank. Scott was upset. Bill had then offered his resignation from the BOD. The concensus of the rest of the board was that the offense was not that serious and did not think resignation was necessary or appropriate. Scott then offered his resignation. After much discussion both Bill and Scott were convinced to remain on the board. It was the concensus of the board that information about the NAPRA backbone was not usually published, but was not secret either, and could be given to anyone who requested it. The BBS forwarding information was the priviledge of the BBS Sysops and we (as NAPRA) should not send it out without their permission.

IV. Other Business
A. Ken, N7IPB, returned to the problem of cavities and circulators for SEA and SEAW. We are in the process of replacing some of the equipment with NAPRA owned items. We have 2 GE MPV which are being modified for use on 144.99 and 145.01 MHz at SEAW and SEA respectively. Crystals are on order and 1 isolator is available. A schedule for completion of the work is needed.
B. John, KA7TTY, asked if NAPRA as packet coordinator was going to coordinate other semi-fixed packet operations such as TCP/IP. The majority opinion was no.
C. Due to time, it was agreed to continue the discussion on SEA and SEAW following the General Meeting.

V. Meeting was adjourned at 12:10 PM.

Minutes of the NAPRA BOD Meeting Jan 11, 1992

I. The Board of Directors meeting was called to order 10:28 AM at the Radio Club of Tacoma ham shack by President Ken, N7IPB. Also present were Bill, AA6ED, Scott, N7FSP, Peter, WA7FUS, and John, KA7TTY, as well as Larry, WB7USL, and Eva, aa6ed-99.

II. Treasurer, Peter, WA7FUS, reported a balance of $1595.07.

III. OLD BUSINESS

A. Tech VP, Scott, N7FSP, reported that the north cluster, SKAGIT, PTN, SPR, BLI) will be moving to a new

NAPRA General Membership Meetings

2nd Saturday of each month, beginning at 1:00PM.

odd months: **Radio Club of Tacoma Clubhouse 1249 South Washington Street Tacoma, WA**

even months: **Boeing Employees Amateur Radio Society Clubhouse at the Renton Municipal Airport on Airport Way, Renton, WA**

backbone 220 frequency very soon. Also, the Alinco DR-1200T, loaned to NAPRA by the local distributer is still working on the ALKI to BALDY link. The loan has been extended for another 60 days. Alinco has indicated that they will have a mod for 9600 baud operation very soon, and future radios will come from the factory with the mod installed.
B. President, Ken, N7IPB, reported that crystals for the GE MPV VHF radios for SEA and SEAW have been installed. One radio has been tuned up and the second will be tuned up soon. The both radios need a few mods to allow connection to a TNC and insertion of an isolator in the transmit line.
Larry, WB7USL, asked if UHF versions of the GE MPV were available. Peter, WA7FUS, indicated that there were UHF versions out in use, but did not know of any being available at this time. Larry said we should all keep our eyes open for any of these.

IV. Minutes of the last BOD meeting in December were read and accepted.

V. NEW BUSINESS
A. There was discussion concerning the generating of bulletins and written comments by individuals under the NAPRA name without review of the whole BOD It was moved that Bill, AA6ED, Executive VP, be appointed Focal Point for packet information to and from NAPRA. The motion was seconded by John, KA7TTY, and passed.
B. John, KA7TTY, indicated that King County ARES District Emergency Coordinator Richard Gibbs, KA7AEF, and Assistant District Emergency Coordinator Dave Wright, N7GDW, have asked to come to our February BOD meeting and present some information concerning emergency use of 2 meter frequencies and the current or future packet use of these frequencies. As packet coordinator, the Board agreed to listen to their presentation. Ken, N7IPB, will contact other ARRL officials to get their input on RACES and any special RACES frequencies.
C. Scott, N7FSP, indicated that the MFJ-1274 donated to NAPRA was currently in operation on the CHAT conference node on ALKI.
D. Bill, AA6ED, had 4 items for BOD consideration:
1. Lockout of W0RLI from BALDY and #ALKI3 - After much discussion, a motion was made to remove all callsign lockouts from NAPRA nodes (SEA and SEAW) and strongly recommend that other node operators in the Seattle area do the same. The motion was seconded and passed.
2. W0RLI Projects - After much discussion again, Bill, AA6ED, was asked to request Hank, W0RLI, to prepare and send to him details of the 5 projects he mentioned so they can be considered by the current NAPRA BOD.
3. HF Paths (forwarding) - Hank, W0RLI, will be informed that currently NAPRA has not become directly involved with HF forwarding. Therefore, at this time, he should contact our local STA station, Mike, W0LVJ, concerning that subject.
4. HF Packet Coordinator - Since this relates to 3 above, it was tabled until the Board has made some decisions concerning HF involvement.
E. There was further discussion concerning whether NAPRA should become more involved with subjects like BBS forwarding and HF forwarding. It was decided that the board and others needed to exchange views on these subjects and carry on further discussion (by packet) between now and the next BOD meeting. These should be sent to Scott, N7FSP, for forwarding to the rest of the board.
F. Network Proposals - There have been 4 proposals sent to NAPRA: 1. from John, KA7TTY, proposing a NEDA type dedicated simplex node to node network, 2. from N7HFZ, proposing a non-interference network as described in the 5th ARRL Computer Networking Conference Notes, 3. from Ken, N7IPB, proposing a cental cross-band repeatr hub network, and 4. from Scott, N7FSP, describing another different approach to the non-interference network. Several of these proposals did not contain sufficient detail to allow the board to properly consider them at this time. Therefore, the Board requested that these proposals be reworked and more details added, specific changes at nodes described, and an estimate made of the cost to change any existing sites, and the cost of any new sites be included. These should be forwarded to Scott, N7FSP, for distribution to the Board as soon as possible.
G. There was discussion about changing the BOD meeting to a different day or time. The concensus was that there was no other time that would work for everyone. Ken, N7IPB, will contact Steve, N7HFZ, and discuss the problem.

VI. Meeting was adjourned at 12:30 PM.

Minutes of the NAPRA BOD Meeting Feb. 8, 1992

I. The Board of Directors meeting was called to order at 10:05 AM at the BEARS Shack in Renton by President Ken, N7IPB. Also present were Peter, N7ENT, Scott, N7FSP, and John, KA7TTY. Later in the meeting Bill, AA6ED arrived. Also present were Tadd, KA2DEW, John, N0NDO, Richard, N7HHU, Doug, WB6VAC, Don, N7NKJ, Larry, WB7USL, Dave, N7GDW, Steve, N7IIJ, Bob, W7KCJ, Jerry, KA7LEM, Julian, KA7MCB, Conrad, N7DUO, Ken, N7QAN, and one or two others who didn't sign in. (Tadd, KA2DEW, didn't blow his horn, but he is the Editor of North East Digital Associations publication called the Quarterly.)

II. Treasurer, Peter, WA7FUS, was not present, but Ken, N7IPB, read his report of a balance of $1501.32. Minutes of the last BOD meeting were read by Secretary, John, KA7TTY, and approved.

III. Tech V.P. Report, Scott, N7FSP - The North Sound Cluster (BLI, SPR, PTN, and SKAGIT) are on a

Looking for Help with Packet Radio???

The Thursday Night Packet Radio Ragchew is an excellent place to get help with any problems you might be having with Packet Radio. The Ragchew meets every Thursday evening at 9:00 PM on the BEARS 145.330 Mhz repeater and other systems on the Evergreen Intertie repeater linking system. Helping newcomers to packet is a special interest of the Ragchew. See you there!

new 220 Backbone. As was expected things are still a little slow with 4 nodes on the same frequency. Their link to the rest of the network is still PTN to BALDY and is working as expected. The callsigns on SEAW have been changed to WB6VAC-9 on the user side and WB6VAC-10 for #SEAW on the backbone.

IV. OLD BUSINESS

A. Scott. N7FSP, indicated that since Doug was now in control of the TNCs at SEA and SEAW, that providing passwords was no longer an issue. The Board agreed.

B. Peter, N7ENT, had a few items to bring up:

1. At the December BOD Meeting, there was discussion of changing the meeting date and time. Ken, N7IPB, was to contact Steve to discuss this. Was that done? Ken reported that it had not.

2. Regarding the presentation from ARES Officials, Ken was going to contact other ARRL Officials for information on ARES and RACES frequencies. Was that done? Ken reported that it had not.

3. At the December BOD Meeting, the secretary was requested to draft a note to SYSOPs concerning appointing cluster node repersentatives and route it to the rest of the BOD for comments. Was that done? John, KA7TTY, reported that he was not sure and would check into it.

4. At the December BOD Meeting the question was raised concerning who actually represents packet radio in Oregon. Ken, N7IPB, was to contact Chuck, AF7S, from TOPS. Was that ever done? Ken reported that no it had not.

5. Regarding the radios for SEA and SEAW, what is the current status. Ken reported that we have the new crystals installed in these redios and they are being tunedup. The mods for TNC connection and insertion of the isolators in the transmit lines are still required. One isolator has been obtained and there are leads on another and cavities, but we do not have them at this time.

C. Scott, N7FSP, asked if the letter to Hank, W0RLI, and Kirk, W7GCI, were ever sent as requested last June. Ken, N7IPB, reported that they had been sent. Scott asked if we could see a copy. Ken indicated that that was not possible. He had not kept a paper copy and had suffered a disk crash last fall and lost that and all the data on his disk at that time. Scott indicated that both Hank and Kirk indicated they had never received the letter. Ken indicated that the letters had been sent to the latest known addresses of both. Doug, WB6VAC, indicated that their callsigns were no longer locked out anyway.

D. There was a general discussion concerning the I.D. of packets being sent through the system. It was generally agreed that the specific requirement was for I.D. at any specific time of the station actually transmitting, however, "intent to deceive" by using bogus callsigns was also illegal. Where the bogus callsigns were used imbedded in the packet header to circumvent software lockouts, and the name and/or I.D. of the actual sender was in the text, and the I.D. of the station actually transmitting was correct, the operation was probably strictly legal although somewhat unethical.

There was then some discussion concerning the need for a Packet Code of Ethics to guide people in how the packet community wanted 3rd party traffic being sent to a 4th party to be identified.

E. Richard, N7HHU, reported that the Yakima HamFest on May 23 and 24th would include a Packet Forum. He would like to see papers presented on what can be looked for in the future at the state level. What plans are currently in work both short term and long term. Richard indicated that he had space for 4 or 5 one hour sessions which would include a 20 to 30 minute presentation followed by a question and discussion period. He hoped to have a State SYSOP meeting, some discussions about the future of packet radio, some practical discussions for general users, and discussions of DX-Cluster, etc.

Peter, N7ENT, moved we blanket the area with a call for papers along with an article for Zero Retries. Richard indicated a deadline for draft summaries of papers was April 15th with final papers required by May 1st. The motion was seconded and passed. Richard will send info to John, KA7TTY, who will prepare and send bulletins.

V. NEW BUSINESS

A. Peter, N7ENT, moved to proposed an amendmant to the NAPRA By-Laws number 3 to read: "Special meetings of the membership or the Board of Directors may be called by request from two (2) Board Members." Scott, N7FSP, seconded the motion. Per the Constitution it will be presented to the membership at general meetings and printed in Zero Retries, and voted on at the first meeting following.

B. Peter, N7ENT, moved to dis-establish the position of Public Information Officer set up at the last meeting. Seconded by Bill, AA6ED. Discussion included caution to everyone to not make statements representing NAPRA without approval of the BOD. Identifing yourself as an officer of NAPRA is ok as long as a note is made that it is your own personal comment and not the BOD. Motion passed.

C. The board agreed as a general policy to allow the Zero Retries Editor to submit estimates of expenses in advance of publication and receive advance payment from the Treasurer. Actual expenses will then be submitted by the editor after publication and proper adjustments made at that time.

D. Peter, N7ENT, asked that the Treasurer provide a more detailed report each month than just the balance. Ken, N7IPB, indicated that usually more details were presented, but only the balance was reported in the minutes. Ken will ask Peter to provide a more detailed report next month, and John, KA7TTY, will include all of it in the minutes.

E. Peter, N7ENT, asked that the Treasurer bring the current inventory of material owned by, or on loan to NAPRA to the next BOD meeting. In connection with this Scott, N7FSP, was reminded that he was to provide the BOD with a list of the equipment at SEA and SEAW that NAPRA owned or was using. All BOD members were asked to send info to Peter, WA7FUS, concerning all material belonging to NAPRA which they were aware of so he can update his list.

F. ARES Issues - Dave Wright, N7GDW, King County ARES Assistant District Emergency Coordinator, was present and made a presentation to the BOD of his concerns relative to what 2 meter frequencies were being used for packet and conflicts with frequencies designated for emergency communications within King County and between King County and other jurisdictions.

We explained that NAPRA was in the position of coordination of fixed packet operations such as nodes and BBSs, but no one spoke for simplex keyboard to keyboard operation, the

same as no one speaks for voice simplex operation.

Dave mentioned that there had been incidences where Search and Rescue operations had experienced harmful interference from packet operations, and he needed our assistance in resolving these conflicts. He indicated that in many cases, radios in use by the SAR community were only frequency selectable over a small range (2 MHz) and were crystal controlled in an attempt to control interference within radio systems in a base camp operation. He also noted that the frequencies allocated to RACES during Emergency Powers Act operation were the same as Amateur simplex frequencies.

Discussion centered on the need for a regional band plan to cover all types of operation, not just ARES emergency voice simplex and packet. With something like this, NAPRA could publish a list of frequencies to avoid packet use. There was much discussion about potential areas of conflict. As initial steps toward resolving these problems, Dave, N7GDW, agreed to prepare a list of frequencies currently used in Western Washington by ARES and Search and Rescue Emergency Operations along with the particular locations involved and get a copy to NAPRA. NAPRA agreed to issue a request for information from the packet community of what frequencies were being used for what on packet including keyboard to keyboard operations. John, KA7TTY, NAPRA Secretary, agreed to prepare a draft bulletin for submittal to the rest of the NAPRA BOD. The final bulletin will be distributed to Western Washington BBSs. Ken. N7IPB, will get it distributed to TCP/IP users, and Conrad, N7DUO, agreed to get it to DX-Cluster folks thru NB6Z and KY7X.

From all this a composite list can be prepared and actual areas of conflict identified. Then we can discuss ways of getting the appropriate people together and resolving the conflicts.

G. Ken, N7IPB, announced that he had been appointed contact for packet radio to the WWARA.

H. Peter, N7ENT, announced that the deadline for the next issue of Zero Retries was the end of February.

J. Doug, WB6VAC, was asked to talk to the Board and explain what had happened to the SEA and SEAW nodes, and what his plans were for the future.

Doug explained that he was placed in a position by the site owners (Sam and Sammy Sewell) of isolating them from the problems and politics of Amateur Packet Radio. He felt that the only way out at the point 2 weeks ago, was to assume actual control of the equipment and not just virtual control from behind the scene.

His plans for the future depend a lot on what NAPRA wishes to do with their equipment at the sites. If the equipment remains and he does not have to replace it, he plan to move ahead with a program to up-grade the SEA SEAW backbone to 9600 baud this summer. John, W7MSR, representing to W7DK Tacoma group, asked what specifically that meant to them. Doug indicated that what he was planning affected just the high level mountain top sites which would have gateways to interface with the rest of the network. When asked, Doug indicated that the gateways were PC-XTs running software called SuperSwitch which implements NetRom type protocol. He wanted gateway type operation with lots of buffer so data on the 9600 baud backbone would not be backed up by the 1200 baud user ports. The gateway would buffer the data, lots of data, and feed it to the user at 1200 baud. He indicated that initially the system would include SEA, SEAW, and ALKI, and he would discuss extending it to ELN, SPR, and LSO in the future. He asked NAPRA members to provide input to their Board of Directors on how they should help and support his efforts.

The Board agreed to consider the NAPRA equipment at SEA and SEAW on loan to Doug to use as he saw fit. If anything different was decided in the future, we would contact him and make other necessary arrangements. Doug said he could live with that. The Board agreed to study everything and decide how best to support their members specifically and the packet community in general and would be in touch with him.

K. Bill, AA6ED, asked that his resignation be accepted. The Board agreed.

L. Ken, N7IPB, asked BOD members to be thinking and inquiring about a replacement board member. Announcement will be made at the general meeting this afternoon.

VI. Meeting adjourned at about 12:45 PM.

Proposed Amendment to NAPRA By-Laws

Change Part 3 of the By-Laws to read:

3. Special meetings of the general membership or the Board of Directors may be called at the request of two (2) or more Board members.

Current wording of Part 3 of the By-Laws:

3. Special meetings of the membership or the Board of Directors may be called at the discretion of the President or by request from two (2) Board members.

Net Controls Needed

The 9:00 PM Thursday Night Packet Radio Ragchew on the Evergreen Intertie Repeater Network is in need of Net Control Operators. The Net Control Station directs the Ragchew so that as many stations as possible may get their questions and comments in. If you are willing to try your hand at being a Net Control Operator for the Ragchew, please contact NAPRA Executive Vice-President John Painter, N0NDO @ N7FSP.

Linking Nodes on User Frequencies

by Peter Kallio, N7ENT, NAPRA Director-at-Large

I received several inquiries about my comments in the last issue of Zero Retries. In it I stated "user frequencies should be for user operations, not linking nodes." I will expound on my reasons and feelings about this.

To begin, you should know that I received NO comments strongly opposing my views to linking the network via user designated frequencies. The comments received were requests for either clarification or my opinion on certain scenarios.

First, some definitions:

USER - An individual who accesses the network in a non-automated fashion. By non-automated, the user is sitting at a keyboard and manually pressing the keys to access the network. The automatic forwarding of Bulletin Board messages, for example, is NOT A USER accessing the network.

USER DESIGNATED FREQUENCY - ANY frequency that has been coordinated for user access to the network.

RE: Providing BBS's Level 3 [or node-style] access to the network is more efficient and provides message security.

How can it be more efficient? A Level 3 link requires more bytes of header information than a Level 2 link to pass the same information. Transmitting more bytes to get the same information through is less efficient use of the frequency. The only way I believe that BBS's should have Level 3 links to the network is if they are either;

1)Physically located at the node site (linked via hard wire), or

2)Have a separate link frequency or a telephone link to the node site.

Privacy for messages??? If the user wants privacy he should be using the U.S. Mail or a telephone. By using a Level 2 link to the node site, a user can intercept and keep messages or bulletins of interest using the available 'Leech' programs. This will increase efficiency of the LAN. Now this user will not have to connect to the BBS to read the message or bulletin, he already has it.

A BBS Sysop interested in helping out the network will do his forwarding to other BBS's on a frequency/network that is completely separate from the user network. This is specifically what the BBS's in the Seattle area have done. We now have 6 BBS's linked on 222 Mhz for passing messages and bulletins. Talk about an increase in efficiency!!! Now the user frequencies are really USER FREQUENCIES!!!

This 'BBS Forwarding Network' has provided enough 'excess capacity' (don't you just love that term?) to the Seattle area network that several BBS Sysops in the areas bordering on Seattle believe they should forward messages and bulletins to each other THROUGH the Seattle area user network rather than via the Seattle area BBS's. They claim "this will reduce message delivery times" and "we only forward during the early morning hours." Let's say "early morning hours" are between 2:00 am and 4:00 am. This means that the average message will wait 11 HOURS to forward from one end of the Seattle network to the other!!! (The likelihood of a message arriving at 1:59 am is the same as one arriving at 4:01 am.) Does it really make sense not to forward a message you received at 7:00 am one day until 2:00 the next morning when an approximately 2 hour route exists via the current Seattle area BBS's? This doesn't sound like "reduced message delivery times" to me! (There is one BBS software program designed to allow uncomplicated routing of a message to any of numerous directions based upon time of day or the length of time it's been on the BBS without being forwarded. But this isn't an article on MSYS operation.)

So, as you can see, I don't believe in providing Level 3 links to the network for BBS's or anything else on a user frequency. However, if someone does feel that he must, he should limit the propagation of the node identifiers/aliases for the BBS to only the user node(s) which it directly serves. Coordination of these nodes by the area packet coordinating body is also a must.

RE: LAN Extensions.

Why a LAN Extension? Why not a separate LAN? If a LAN does not cover a desired area, then, instead of extending it, put up a new LAN. I have done this for my BBS users here in Port Orchard, but not for extending the LAN, to increase its efficiency. Does it make sense for a user who lives 2 blocks away from my home to have to link to the node and then back to the BBS to read bulletins? No, but to be fair to the other users of the node it needs to be this way. A BBS Sysop that realizes this inefficiency can add a 'Direct Local Access' port to the BBS on a different frequency. Now this user that lives down the street can just connect straight in and the user who must use the node to access the BBS has fewer users to contend with. This will reduce the number of packet collisions and increase the efficiency of the network for BOTH users.

In addition, a 'LAN extension' will have to get its periodic nodes updates

Renew Your Membership!

NAPRA doesn't send out reminders when your membership has expired. Our way of communicating your expiration date to you is the date on the address label for this issue. Please check the address label and renew if appropriate. **Your membership is very important!**

Tuesday Night Computer Net

This net is held every Tuesday night at 9:00 pm local on the BEARS 145.330 repeater (and other connected Evergreen Intertie systems).

Anyone who wishes to help as a net host (net control) please contact either Marshall, N7RCW, or Steve, KG7JE.

from the 'main' node. This means that the user frequency also will have to carry all the network routing beacons for these nodes. More non-essential information on the user frequency means a less efficient user frequency. The node that my BBS serves (SEAW) only provides routing information for itself in its broadcasts. The additional information is not necessary.

RE: The need for abnormal or emergency links for network breakdowns.

Having some kind of link between nodes in the network is better than no link when an equipment failure occurs. However, this link must be CRUCIAL to network operations, a TEMPORARY fix until network repairs are made, and COORDINATED by the local packet coordinating body. They should also be setup not to transmit node routing information (including itself). The user desiring to utilize this 'gateway' between LANs should connect to the first LAN node, then connect to the gateway (by using the gateway's callsign-SSID), and then to the node of the other LAN. This will lessen the impact of this 'gateway' to the users of both the LANs.

I believe the Ka-Node feature of the Kantronics KPC-4 TNC ideally suited for this purpose. Users could install these 'gateways' at their home, use them as a normal TNC, and leave them in constant operation. Identify these 'gateways' on area packet network maps. They will provide the redundant, albeit painstaking, network linking that many packet network managers (and armchair complainers) are searching for.

Additional Comments

Agreed, there are more nodes in Oregon than in Washington. Perhaps the node operators in Washington would prefer to set up a node with a backbone link to the other nodes than simply tossing up an 'extension'. Twice the amount of equipment means twice the cost. A cost that many of the 'LAN extension' enthusiasts may consider unacceptable.

Where I work, the lives of hundreds of individuals depend upon whether I did a job properly or not. Knowing this, I do the best work that I can do. This also requires that I interface with my fellow workers and help them to do the best job that they can. It doesn't take that much more effort to do something right the first time. So why do it half-a**ed? It's the same with our network.

My observation is "Why wait until network access for the user becomes difficult to make changes?" Get the user to realize and use his 'market pressure' to improve the network before it reach that state. Allow the users to determine whether they want that 'LAN extension' or not. When provided with both sides of the argument, they'll agree that any 'LAN extension' helps fewer people than it hinders.

'LAN Extensions' and BBS's linking into the network with Level 3 links on the user frequencies are backward steps in the evolution of the network. You, the packet USER, need to know that you do not have to lie there and live with it. And it's my job as the editor of Zero Retries to make sure you do.

NOTE: The views expressed in this article are solely those of the author and do not necessarily reflect the past, present, or future views or direction of the Northwest Amateur Packet Radio Association.

Modifying TNC-2's for 19.2Kb Serial Ports

by Anthony Varga, VE3ZAV, Kellogg Canada Inc., London, Ontario, Canada

The following is a relatively easy modification that allows reliable 19.2K baud on the serial port and radio port of most TAPR TNC-2 boxes.

1. Replace U3 (LM324 op amp) with a TL084CN or TL094 if no TL084CN or eqiv. This is a high speed JFET hi-Z op amp. Just that fix alone will allow you to run 9600 baud on the serial port to your computer. I found that the TAPR 1.1.6. code WITH the PMS ran without any serial port misbehaving BUT it was sluggish. The 1.1.6. code (or lower) without PMS is quite a bit quicker.

2. Cut the PC trace that goes to pin 2 of divider U1 about 1/8" from U1. Run a short jumper from pin 10 of the divider U1 to the side of the trace you just cut that goes to the SW2 baud rate switch. This is the side of the cut opposite to pin 2 on U1. This supplies a 307.2 K clock to pin 1 and pin 6 of the SW2 which NO LONGER SELECTS 300 BAUD.

The 307.2 K is 19.2K/16 which is fine and dandy. To run 19.2K on the serial port, turn SW2 switch 1 on. SW2 switch 6 selects 19.2 K to the MODEM port, switch 7 selects 1200 baud to the modem port and switch 8 selects 9600 baud to the modem port. Keep in mind to leave switch 7 on unless you have installed a higher speed modem in your TNC.

We are running 19.2 K serial and 9600 baud radio with G3RUH modems and Kantronics DVR 2-2 radios with excellent results. Next step is to up the G3RUH boards to 19.2 K by replacing a couple of capacitors.

OHHH WHAT A FEELING.....

Network Views

by Doug Lux, WB6VAC, Site Manager at SEA and SEAW Locations

If you are the type to watch mail fly around, then some of you have seen the name Super Switch 1000. No you can not find it at the local candy store (ham store, goodies shop, etc). It is the name given to the project by the software's authors. I am deeply involved with the development and testing of this tool for network use. The super neat folks at S.O.P.R.A. in Eastern Canada, are the authors, and I have the privilege of doing the alpha/beta testing. The interesting point about this, is that we had never met before, yet our plans had each developed separately to a point where one person could have written both of them. I was very lucky to have been put into contact with these people, and I really feel it is a privilege to be on the team. (yes there are fun parts to packet!)

The switch is now up and running online at N7FSP's hub site and two more are being used for testing before they go on the hill. For technical reasons the node stack on the hills have a limited growth size, especially at hi speed. When you have more than two nodes connected together in the infamous diode matrix (octopus cable) the system must run half duplex thus the 9600 link now is really only 4800 (this is a general statement, yes it still sends at 9600, but only one way, with collisions like on the rf side). Since I need to be able to handle 9600 full duplex, collision free or higher, the plan for the switch came up. The fall back on failure can still be the cable. The switch uses a generic clone Pc, with 2, 4-port serial i/o cards, thus 8 ports. This is all transparent to the system, and the nodes think they are still on the cable only there are only 2 nodes, so its full duplex 9600. These switches are cheap to build, and they will have many other features. For now the basic part is up and going, they are cascadeable, thus the ability to make the network look like one giant switch. Now we can start on the bells and whistles for the extras we want to see. There are alot of neat things down the pike, if the support is there to make things happen. This month I will have the pleasure to meet the main software gentleman in person, as we lay out plans for the future of this toy. As things progress we will put out news notes to keep you up to date.

I have been asked to write a little blurb about the future direction of the network. This is no easy task since each statement requires explanation as to why and how come. This is best done on the blackboard where people can ask questions. And most of all the design is NOT locked in concrete. I do want to make it very clear, that I am not trying to be a one man show and control the world. There is more than enough work for lots of people to do. I do hope that I have removed the network as far from the politics as is possible, and that I will be able to get things moving, we have waited long enough.

The basic plan is to build a hi level, long haul, hi speed trunk or backbone with gateways for the only access points. There will be no user direct access on this system, but all users will be able to get through the system to take advantage of its service. It is being designed to be around (I hope) when the ground shakes or what have you, and we really need the ability to move emergency traffic. All other traffic is practice for the real needs of a radio based network. Although it will have "worm" hole entry points, the plan is to not have any major link dependent of the non-radio media. All gateway entry points will need to have emergency power capability.

Because the network will be hi (9600 or more) speed, there will be no 1200 links directly connected, once things are done. The gateways will be the buffers and access points for the 1200 baud world. There are many reasons for some of these moves, and each one would require an article alone. The protocol used with in the network may change from time to time but it will all be transparent to you the user, the gateways will make it look just like things are now. The nodes broadcasts will only show the gateway points, nothing beyond it, thus the nodes broadcast will be short and frequent so that the network will correct its self quickly.

As an example, suppose you are in Everett, and want to talk to Portland. You would connect to your local gateway xxxx . Once in the gateway you would select to enter the network, and connect to the South gate. Since the South gate has not been located, lets say its yyyy in Longview. The path form xxxx to yyyy is at most 2 hops at 9600. Once connected to the South gate you can then do a nodes list of the network south and do your thing. Some one in Portland could go to Canada the same way by connecting to the South gate then the North gate which would put that person into the Canada network in only 2 hops at most and if it all works out, the South to North link will look as a direct connect by real time regenerative repeat. East across the mountains will be the East gate, which is only one hope from the N/S link. Each hub location will be connected together with a 'switch' and all of the 'switches' are linked together, so that they look like one giant switch (all of the tnc's in one room on one cable) or at least that is what netrom will think. The switches are up and running being tested now. Scott as the hub bbs is running one online and I have two at my house with 5 nodes and a bbs for testing. There are many more plans and things in the works, but the base system must be in place first. It will be up to YOU the users as to how fast this thing goes. I do not have the funding of the Bears to do this like the Evergreen link, but it can go about as fast if you the users get behind it both in spirit and with funds. Each lan will have to fund there part at the entry points, and gateway people will have to be located. Hopefully the bbs people will be ready to take this part on, as they are the logical ones. I do hope that you the users will take time to learn about this, to ask questions, and most of all get behind it.

TAPR Deviation Meter Project

by Lyle Johnson, WA7GXD, Tucson Amateur Packet Radio Corporation

[Reprinted from the January 1992 (Issue #45) Packet Status Register, published by Tucson Amateur Packet Radio Corporation]

The Deviation Meter (DevMtr -- don't you just love acronyms?) project is rolling along and gaining momentum! As reported in the last issue of PSR, prototype PC boards had been delivered and construction had commenced.

For those of you not familiar with this device, it is a station accessory that is designed to allow you to easily and accurately measure your FM transmitter's deviation. Deviation is one of the most important parameters you must set to get optimum performance from your packet station. It is easy to adjust (merely set the TX Audio output level from your TNC), but generally so difficult to measure that most folks don't do it.

The downside of incorrect deviation is poor station performance. For example, running 5 kHz peak deviation with a normal TNC will seriously degrade the ability of other stations to copy your packets. This leads to excessive retries and less channel time for everyone. Under deviation is less of a problem, but most folks just plug in their TNC to their radio and operate.

In the case of a 9600 bps direct FSK system, excessive deviation means you won't fit in the receiver's filters very well, again leading to excessive retries or just plain poor performance. Under deviation in this case will rapidly lead to "intersymbol distortion," which is just a techno-phrase meaning the other station will have a hard time copying your signal.

From this, I think you can see that proper deviation of your transmitter is fairly critical to decent packet performance.

The DevMtr is designed to enable you to quickly and inexpensively measure your transmitter deviation with enough accuracy to allow your packet station to operate at peak efficiency. It is also designed to include within itself all necessary calibration circuitry. All you need to make this unit operate is a soldering iron and, initially, a terminal or computer to talk to its serial port. With a little luck (luck meaning I am able to cram all the needed routines in the tiny EPROM space of the DevMtr's controller), you won't even need the terminal...

The DevMtr consists of a power supply, 2-meter receiver, synthesizer, signal conditioning circuitry, calibration oscillator, 4-channel A/D converter, microcontroller, serial port, switches and 4-digit LED display. And, yes, all of this fits on a 3" by 5" PC board!

I am writing this on January 1, 1992 (what did you get to do on your holiday?) and am happy to report the following status (statuses? stati?):

Power Supply

The unit runs internally on +5 volts DC. A simple LM7805-style regulator is included on the PC board to allow operation from a +8 to +16 volt DC source. This circuit has been built and tested on the prototype and runs just fine.

2-meter Receiver

The receiver is based on the Motorola MC3362 receiver chip. It has a first IF of 10.7 MHz and a second IF that is presently set to 455 kHz. The second IF will probably change to a different frequency as testing progresses. Nonetheless, the 2-meter receiver is now functioning. Input from a signal generator at 2-meters has been successfully detected and the modulating audio recovered. So far, so good!

Synthesizer

The first LO in the receiver runs at about 135 MHz. So far it has been free-running. The synthesizer chip, a Motorola MC145170, has not yet been fired up on the prototype board. So, no progress to report here yet.

Signal Conditioning Circuitry

The signal conditioning circuitry has been checked out. The deviation measuring portion is working quite nicely. The signal-strength measuring portion needs to have a resistor value changed and I haven't yet tweaked this value. Nonetheless, the circuit itself is functional.

Calibration Oscillator

This is one of the keys to the DevMtr design. This oscillator runs at the 1st IF of 10.7 MHz. It is enabled by a control line from the microcontroller that also kills the receiver 1st LO, so the only signal the receiver will hear in its IF is the output from the calibration oscillator when selected.

The synthesizer chip will control this oscillator during calibration, generating precise frequencies whose DC level can be measured by the deviation circuitry and stored in a table in the microcontroller to be compared against the real signal to be measured. In this manner, the DevMtr can be recalibrated at will, in a completely automated fashion, in just a second or two.

The calibration oscillator has been built and is functional. It is presently on the wrong frequency, but that just means tweaking a capacitor value or two, or perhaps swapping out the inductor.

4-channel A/D Converter

This is a serial-interface chip, a National ADC0833 with LM335-2.5 voltage reference. This circuit has been built and interfaced to the processor. It works just fine.

Microcontroller

The microcontroller used is a Microchip PIC16C5X. The prototype is using a 16C56 for memory size, but I am hoping the final software will fit in a 16C54. In any event, this is an 18-pin, self-contained computer with clock, RAM, EPROM, and CPU. This is a CMOS part that draws only a few mA of current, and executes its (rather limited set of) instructions very quickly. It has a weird instruction set and is a somewhat bizarre part, but it works and is now controlling the display and A/D sections of the board.

If you use a mouse with your computer, there is a high probability that it contains this chip to track the ball movement and send the resulting information to your computer's serial port.

Serial Port

This is a pseudo-RS232 port (uses +5 and 0 volts so will work with almost anything out there, but undoubtedly not everything). The bits have been wiggled but I haven't yet programmed any code to make it do anything.

Yes, this is a bit-banger serial port for those of you who remember such...

Switches and 4-Digit Display

There are a pair of push buttons that can be read by the microcontroller to allow local control of the DevMtr without resorting to the use of a serial port. They have been read, so this works, too.

Finally, there is a 4-digit 7-segment LED display on the board. These are continuously being strobed and refreshed by the microcontroller chip. This section of the circuit is working fine, as is the software that drives them.

Remaining Tasks

The synthesizer has to be programmed and then must lock the 2-meter receiver 1st LO to a programmed channel. Then, the signal conditioning circuitry has to be tweaked for signal strength readings. Third, the calibration oscillator has to be put on the correct frequency and control by the synthesizer verified. Next, the serial port has to wake up and say something!

At that point, the PC board layout can be committed to production artwork.

Finally, the software will have to be written and debugged to make the DevMtr useful.

I plan to demonstrate the DevMtr at the Annual Meeting in March. With luck, TAPR will also have kits to sell at that time.

Stay tuned!

(The TAPR Annual Meeting was held March 7, 1992 in Tucson, AZ. -ed.)

To Run TCP/IP or a Mailbox Program

by Cal Stiles, W1JFP, Chairman NEDA BoD

[Reprinted from the Fall 1991 (Volume 2, Issue #4) NEDA Quarterly (MAPRA Digitell Section), published by the North East Digital Association]

Some time ago I read about TCP/IP and all the things it will do and the potential it has in Amateur Radio. This got me all excited, WOW! the latest thing; I have to get in on this!

I found a copy of the program for the Macintosh and tried to get it running; well, I did, sort of. Next, N1GYX, Ron, and I went to a meeting in Massachusetts put on by the Radio Amateur Special Interest Group of the Boston Computer Society. We heard an excellent presentation by Rick Booth, KM1G, and were able to come home and do more with the TCP/IP program. There appeared to be numerous bugs in the Macintosh version, so I switched to the IBM version and things went much better.

W1RFP and N1GMC joined the fun and this allowed us to explore the capabilities of the various protocols and learn together.

It was great fun and an interesting experience, but now what do we do with this?

In reading the documentation and talking with TCP/IPers at Deerfield, it seemed to be the general feeling that, even under ideal conditions, TCP/IP does not run well under NET/ROM or TheNET. I can confirm this. My enthusiasm for the results of tests were underwhelming.

I understand NQ1C and WZ2B have had some success with it, but Bob, NQ1C, has related recently that the gateway he set up to run TCP/IP over the NEDA network has been utilized very little. Why? I suspect it is mainly because TCP/IP runs so poorly under TheNET and has little to do with the settings or performance of the network.

Another thing that surfaced in talking with TCP/IPers in other areas was that the bulk of their use was to pass personal messages to each other via TCP/IP, known as SMTP mail.
So what did I do to get this capability? Simple. I loaded my computer with a copy of the AA4RE BBS program and set it up to run as a personal mailbox. It takes little more computer power or disk space than TCP/IP. I now have a mail system that is 100% compatible with the NEDA network, and I can exchange mail with my friends, fully automated. It has all the capabilities and more of the personal mailboxes you are all familiar with. It will forward automatically any of my personal messages anywhere in the network, and it is fully compatible with all existing BBS's and personal mailboxes. Another plus, I have AA4RE set up to handle 4 simultaneous connects. It's a powerful tool and ideal for use as a personal mailbox.

Do I like TCP/IP, sure, it's great fun, and it's a fantastic learning experience, but it is my opinion that until full blown TCP/IP networks are in place, we are wasting our time trying to make it run properly under TheNET.

In closing I just want to say, if you have great aspirations about running TCP/IP over the network, you might want to think about what you are really trying to accomplish and consider some alternatives. I found AA4RE to be a very acceptable alternative for my needs, mainly personal mail.

Zero Retries depends upon submissions of articles and news items from its readers. Send all items of interest to the Zero Retries Editor at the address on the last page of this issue.

Deadline for submissions to the June 1992 issue: Saturday, May 30, 1992

LAN Architecture or Should I use a Beam or an Omni?

by Tadd Torborg, KA2SEW, NEDA Director

[Reprinted from the Fall 1991 (Volume 2, Issue #4) NEDA Quarterly, published by the North East Digital Association]

There has always been controversy since the early days of amateur packet radio as to whether a packeteer should use an omni or a beam. I'll try to resolve that in this article. I think that I can show that in modern metropolitan packet radio a user station should utilize a beam if possible.

Most packet radio operations in the U.S. occur on 2 meters. In most situations when a packet user turns on his radio and TNC the station will hear other sites. Some of those other sites will hear yet other sites and so on. In most cases there will be more than one server, node, digipeater, etc. on the frequency. This is far from ideal. In this case planning either has not taken place or has not been effective. For the purposes of this article I'm going to focus on LAN channels where planning has taken place and where we're now trying to make it effective.

Fixed # of stations, all stations hear each other

There are two LAN architectures available to users of current day off the shelf TNC's. The first is the same architecture used in commercial CSMA ethernet systems. In this all stations can hear each other. All are basically omni. All have equal priority and may make a local decision on when to transmit and be pretty sure of not colliding with another station.

This kind of LAN is possible on Amateur Radio only where spectrum space is not a premium and all of the packeteers are in a planned region. This may be the case in a small community, not a major metropolitan area.

One server, stations don't all hear each other

The second architecture is one in which it is not possible to predict how many active stations can hear each other. Using standard TNCs the only form that this LAN can take and still function with better than 20% efficiency is the form in which one station on the LAN can hear and talk to all of the other stations that one station is the only server on the channel.

These two points are usually the case on designed LANs because all of the users access one node or one server on a given frequency.

It can be proven experimentally or via simulation that the only way to efficiently use a CSMA system with hidden transmitters requires that the total utilized channel time must be less than 20% of the available time. If the server is not a hidden transmitter to anybody then it may use as much time as it wants. Only the user stations need divide the remaining time by 5.

In this scenario a beam should be used for all user stations if possible because it won't affect the channel utilization calculations at all whether the user stations can hear each other or not, so long as the user stations don't transmit very much and the geographic coverage of the LAN may only be controlled if the individual user stations cooperate by using beams.

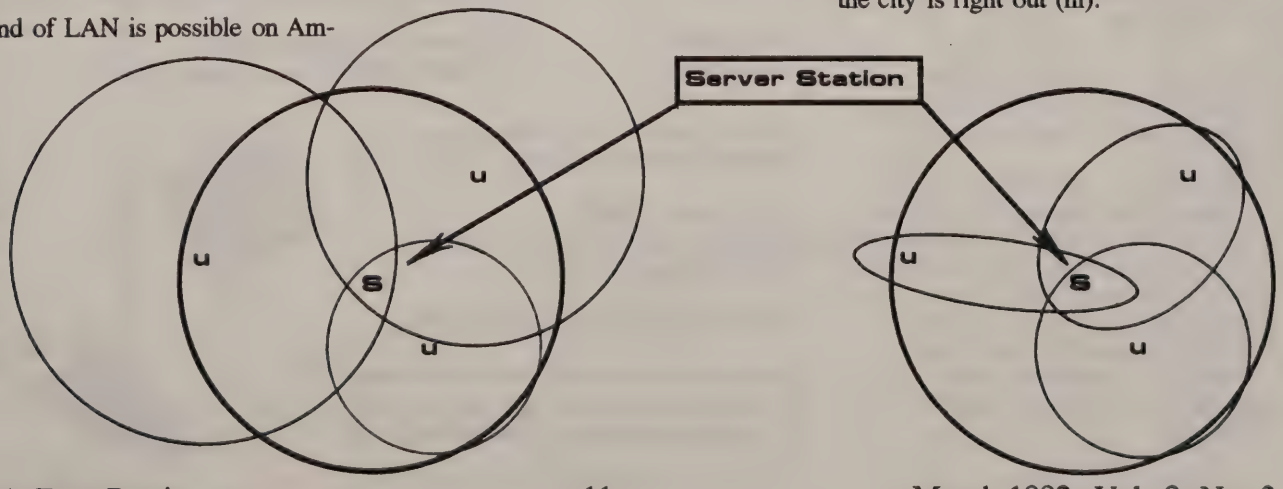
The two drawings show geographic area used by a LAN where the users have beam antennas and by a LAN where the users have omnidirectional antennas.

It can be seen from the drawings that if a large group of people operated to a server station, using omnis, that the size of the LAN would be around twice as wide as the LAN where user stations are operating with beams. This would lead to one quarter then the number of possible LANs on each 2m frequency in the metro area.

Since the most efficient (highest data bandwidth) utilization of a frequency, with a given baud rate, is with a single-server type LAN, the amount of data bandwidth available on a frequency would go up by a factor of 4 if all user stations used beams. (Area of a circle is $3.14 \times r^2$)

Since most 2 meter LANs are not planned there is an immeasurable improvement to be gained by running cellular LANs, with users having beams.

Your next phase, after you prove out the cellular concept is to start reducing the size of your LANs. By reducing the max number of stations on a LAN you increase the performance you give each station. Baud rate is secondary. Obviously having a digipeater on the highest building in the city is right out (hi).



Kantronics Announces Firmware Upgrade

Kantronics has announced they will soon be releasing firmware version 5.0 for the KAM and KPC series of TNCs. The major features of this update are:

ENHANCED PBBS - the PBBS will now keep track of the type of message (Private, Bulletin, or Traffic) along with an indicator if the message has been read, forwarded, or held. This allows you to leave your own messages in the PBBS and the mail-waiting light will stop blinking. It will again blink when a message is in the PBBS addressed to you, and you have not yet read it. In addition, remote SYSOP capability is provided to allow you to remotely delete or re-address ANY message in the mailbox. This function is password protected.

REMOTE ACCESS - You can now connect to your TNC from another locations and set any parameters just as if you were at the keyboard. This is password protected so only you can obtain control of the remote TNC.

The HOST mode of the TNCs now allows your host program to update the CON and STA lights to reflect the current status of your present channel.

New in the KAM only is the ability to access the PBBS using AMTOR (Mode A). All messages in the PBBS are available to either packet or AMTOR users (if they are allowed to read that message). Messages entered in AMTOR can even be reverse forwarded into the Packet BBS system by the KAM.

Kantronics anticipates beginning to take orders for the firmware upgrade approximately March 1, 1992.

In addition, a new version of Host Master (Host Master II+) will be released in the near future. Present Host Master owners will be sent a notice for an upgrade package. The new Host Master II+ will include binary file transfers and other features. A complete mailer will soon be sent describing all the new features.

DX PacketCluster Commands

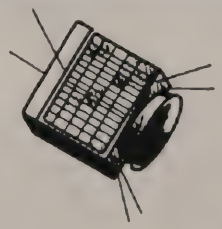
New or Modified Commands for Version 5.0

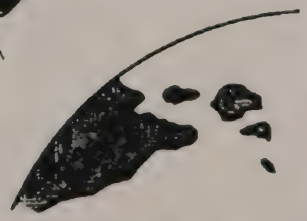
Announce	-	Make a General Announcement to local DX node.
Announce/F	-	Make a General Announcement to all DX nodes.
Bye	-	Bye, disconnect from the PacketCluster.
DIRectory/A	-	Show all active mail messages.
DIRectory/O	-	Show mail to or from yourself.
DX freq call	-	Make a DX spotting announcement.
SHow/DX	-	Show DX spotting announcements.
Help or ?	-	Help.
Help command	-	Display extended Help info for a command.
Read msg#	-	Read a Mail Message.
SEND call	-	Send a message to a single station.
SEND call,call	-	Send a message to multiple stations.
Talk call	-	Talk to a specified station.
TYpe	-	Display a particular file. (ex: TY/BULL User.cmd)
UPDate	-	Update a database. (ex: UPD/Data)
UPLoad/FILE	-	Upload a general file.
UPLoad/BULLetin	-	Upload a bulletin file.
WWV	-	Make a WWV announcement. (ex: WWV SF=#,A=#,K=#,forcast)
WX	-	Make a weather announcement.
SET/BEEP	-	Set bells on.
SET/NOBEEP	-	Set bells off.
SET/DX	-	Set DX announcements on. (default)
SET/NODX	-	Set DX announcements off.
SET/WWV	-	Set WWV announcements on. (default)
SET/NOWWV	-	Set WWV announcements off.
SET/ANN	-	Set Announcements on. (default)
SET/NOANN	-	Set Announcements off.
SET/MAIL	-	Set Mail announcements on. (default)
SET/NOMAIL	-	Set Mail announcements off.
SET/TALK	-	Set Talk feature on. (default)
SET/NOTALK	-	Set Talk feature off.
SET/LOGIN	-	Set Login announcements on. (default)
SET/NOLOGIN	-	Set Login announcements off.
SET/LOGOUT	-	Set Logout announcements on. (default)
SET/NOLOGOUT	-	Set Logout announcements off.
SET/FILTER/xx	-	Filter DX announcements. (ex: SET/FILTER/CW/BANDS=40,20)
SET/NOFILTER	-	Clears DX announcement filters.
SHow/COMmands	-	Display PacketCluster Databases.
SHow/USERS	-	Display local Cluster users.
SHow/USERS/FULL	-	Display all users.
SHow/TIME prefix	-	Show local time for a DXCC prefix.
Show/DX f1 f2	-	Display DX announcements between frequencies (f1 -> f2)
SHow/WWV	-	Show WWV announcements.
SHow/WX	-	Review recent weather announcements.

PacketCluster User's Manuals are available for $10.00 each from;

Ron Rueter NV6Z
15512 Country Club Drive #14
Mill Creek, WA 98012

Allow 2 to 4 weeks for delivery.





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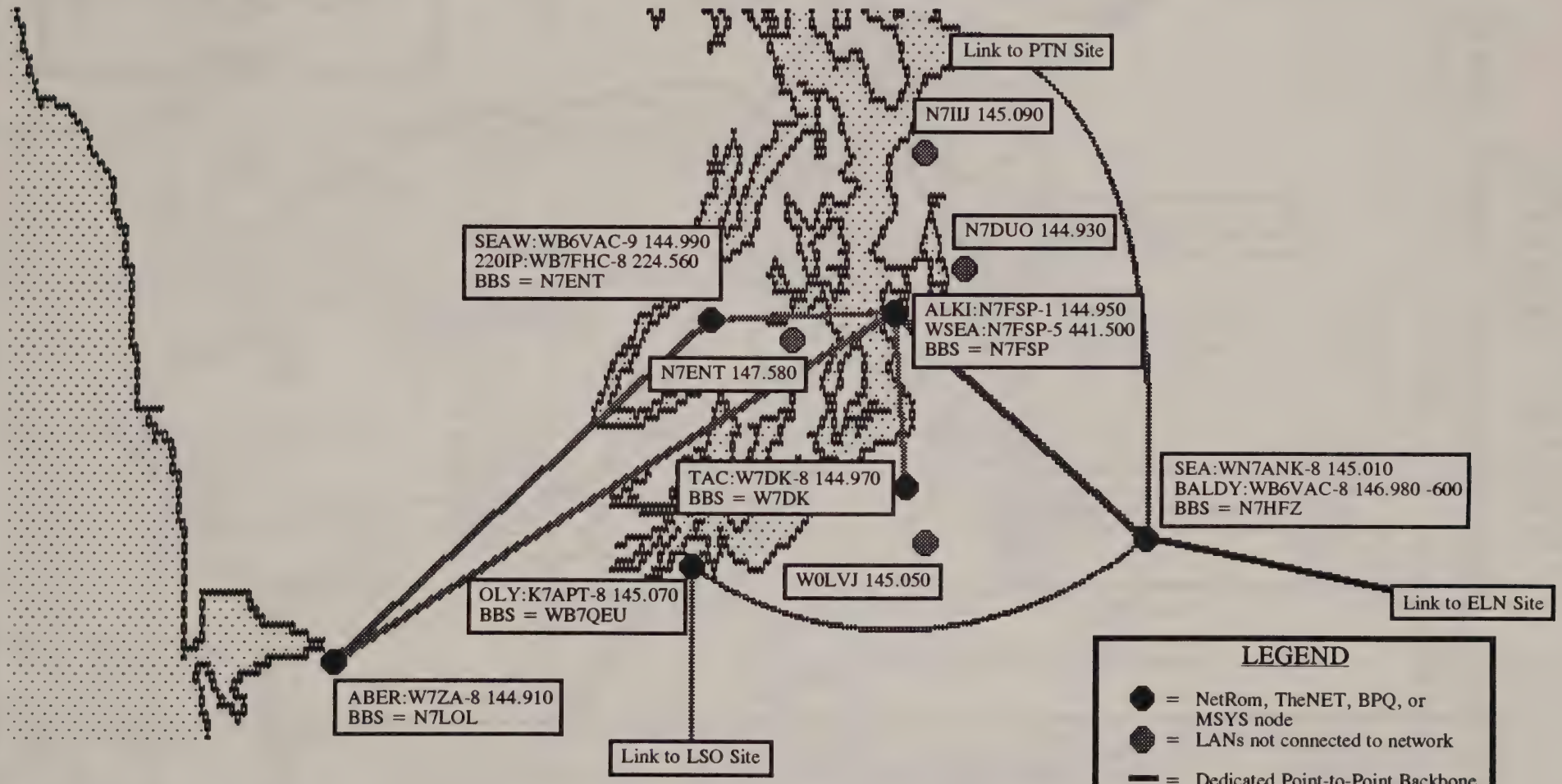
WESTERN WASHINGTON AMATEUR PACKET RADIO NETWORK

Puget Sound and Vicinity



LEGEND

- = NetRom, TheNET, BPQ, or MSYS node
- = LANs not connected to network
- = Dedicated Point-to-Point Backbone
- = Protected HTS-free Backbone
- = Backbone Link via Repeater
- = Unprotected or Suspected Unreliable Links
- 9600 = Baud Rate of Link 1200 if not shown

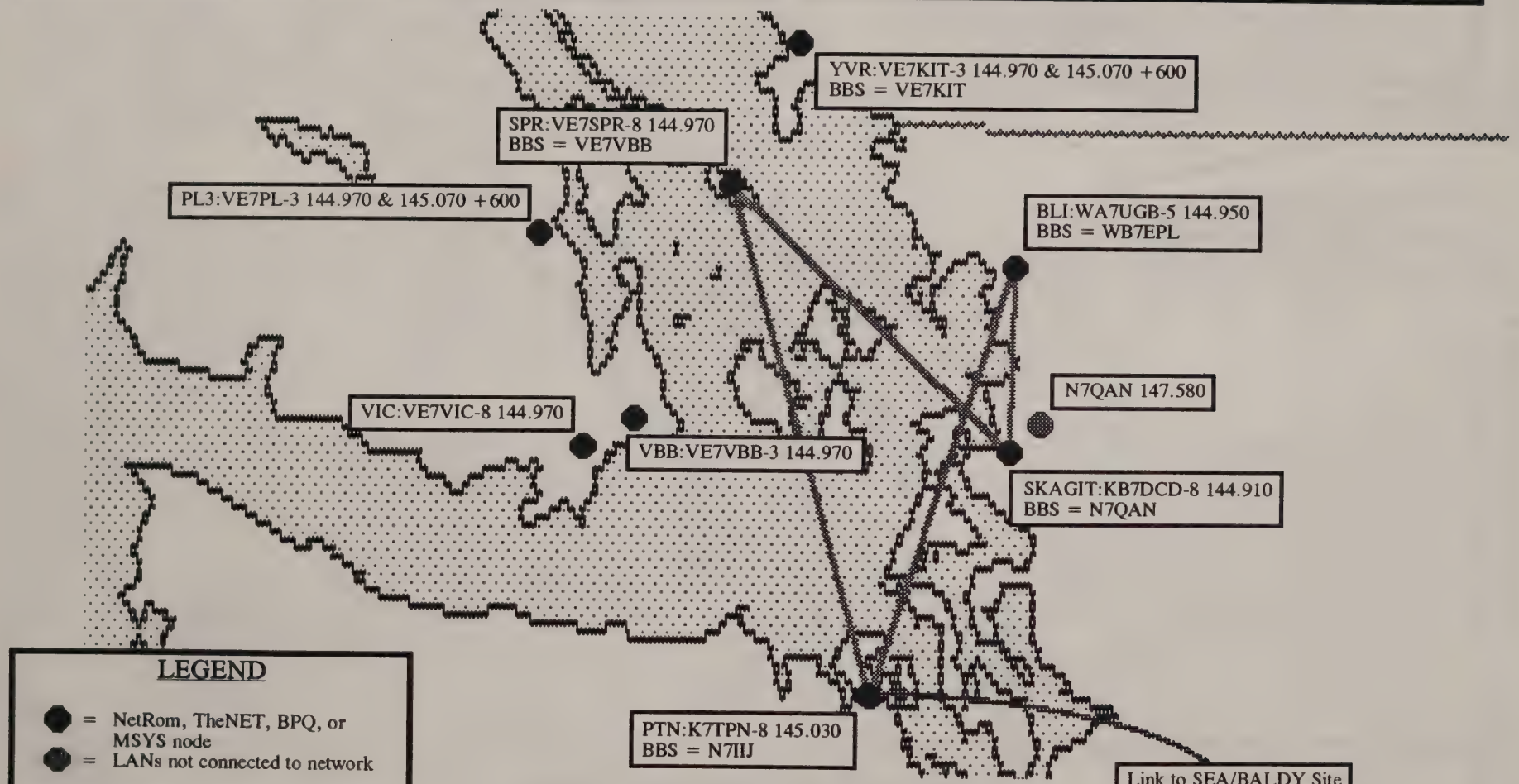
Prepared by Peter Kallio, N7ENT for the Northwest Amateur Packet Radio Association

VERSION 9203

BPQ/MSYS nodes utilized solely as shells for BBS operations and nodes which link into the network via LANs coordinated as "User Access Frequencies" are not shown on this map.

WESTERN WASHINGTON AMATEUR PACKET RADIO NETWORK

Admiralty Inlet and Northward



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April 1992

Amateur Radio Events - Western Washington & Vicinity

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 *April Fools Day*	**2** 7:30pm Issaquah ARC Mtg. 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**3**	**4** 10:00am Boeing Employees ARC Mtg. 10:00am Exams @ North Seattle - Mike W7WHT 282-1438 1:00pm Exams @ Kent - Rick KF7VG 865-7702 Spokane Hamfest
5 *Daylight Savings* Walk On the Waterfront @ Seattle, N7KMB 784-4196 Spokane Hamfest	**6** 144 Mhz Sprint Contest	**7**	**8** 7:30pm Radio Club of Tacoma Mtg.	**9** 7:00pm Exams @ Lynnwood - Jim AA7AZ 745-0347 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**10** 7:00pm Exams @ Seattle - Bob WN7V 788-3129 Visalia DX Convention	**11** 8:00am Sea-Tac RG Mtg. 9:00am Exams @ Everett - Loren KK7M 365-2141 10:00am NAPRA BoD Mtg. 10:00am W Seattle ARC Mtg. 10:00am Exams @ Tukwila - Mary W7QGP 523-9117 1:00pm NAPRA Gen.Mbr.Mtg. at BEARS Shack in Renton Tour de Fleur Walk @ Mt Vernon, N7LCG 362-1829
12 *Palm Sunday* Visalia DX Convention	**13**	**14** 7:00pm Western Washington DX Club Mtg. 222 Mhz Sprint Contest	**15** 7:30pm Cascade RL Mtg.	**16** 7:30pm North Seattle ARC Mtg. 7:30pm Puget ARS Mtg. 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**17** 5:00pm Exams @ Bellingham - Jack K7IWX 738-3129 *Good Friday*	**18** 10:00am Mike & Key Club Mtg. 1:00pm Exams @ Renton - Mike WA7UVJ 854-4031 *Passover*
19 *Easter* 	**20**	**21** 7:00pm Exams @ Auburn - Henry NK7E 474-6145	**22** 7:00pm Exams @ Redmond - Mark WR7V 881-1088 7:30pm Radio Club of Tacoma Mtg. 432 Mhz Sprint Contest	**23** 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**24** Dayton Hamvention	**25** 9:00am - 4:00 pm Elec. Swap Meet @ Stanwood-Camano Frgnds 9:30am Exams @ Bremerton - Dave N7HTK 876-3120 March of Dimes Walkathon @ Seattle, N7LEX 488-0905
26 9:30am VARPA Gen.Mtg. Dayton Hamvention	**27** 7:00pm Western Washington ATV Society Mtg.	**28** 7:30pm Auburn Acadamy ARC Mtg.	**29**	**30** 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz		

This calendar provided by the Membership Services Committee of

NAPRA
Northwest Amateur Packet Radio Association

Please send additions and corrections to Peter Kallio, N7ENT @ N7ENT.WA

May 1992

Amateur Radio Events - Western Washington & Vicinity

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1 902 Mhz Sprint Contest	**2** 10:00am Boeing Employees ARC Mtg. 10:00am Exams @ North Seattle - Mike W7WHT 282-1438 1:00pm Exams @ Kent - Rick KF7VG 865-7702 Yacht Opening Day @ UW, WA7EBH 392-5303 Clean Air Ch. Bike Race @ PugetSd, W7AKA 226-4115
3 Daffodil Classic Bike @ Seattle, N7LCG 362-1829 Clean Air Challenge Bike @ PugetSd, W7AKA 226-4115	**4**	**5**	**6**	**7** 7:30pm Issaquah ARC Mtg. 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz 1296 Mhz Sprint Contest	**8** 7:00pm Exams @ Seattle - Bob WN7V 788-3129	**9** 8:00am Sea-Tac RG Mtg. 9:00am Exams @ Everett - Loren KK7M 365-2141 10:00am NAPRA BoD Mtg. 10:00am W Seattle ARC Mtg. 10:00am Exams @ Tukwila - Mary W7QGP 523-9117 1:00pm NAPRA Gen.Mbr.Mtg. at Radio Club of Tacoma Shack
10 *Mother's Day* Mothers Day Mt Bike @ Kitsap Co, N7LCG 362-1829	**11**	**12** 7:00pm Western Washington DX Club Mtg.	**13** 7:30pm Radio Club of Tacoma Mtg.	**14** 7:00pm Exams @ Lynnwood - Jim AA7AZ 745-0347 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**15** 5:00pm Exams @ Bellingham - Jack K7IWX 738-3129	**16** 10:00am Mike & Key Club Mtg. 1:00pm Exams @ Renton - Mike WA7UVJ 854-4031 *Armed Forces Day* Exams @ Stanwood - Tony N7DX 387-6390 U-District Street Fair, K7QMI 368-3970 (5/17 also)
17 Leif Erikson Nordic @ Ballard, WA7EBH 392-5303 U-District Street Fair, K7QMI 368-3970	**18**	**19** 7:00pm Exams @ Auburn - Henry NK7E 474-6145	**20** 7:30pm Cascade RL Mtg.	**21** 7:30pm North Seattle ARC Mtg. 7:30pm Puget ARS Mtg. 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**22**	**23** 9:30am Exams @ Bremerton - Dave N7HTK 876-3120 Yakima, WA Hamfest 50 Mhz Sprint Contest
24 Yakima, WA Hamfest 50 Mhz Sprint Contest	**25** 7:00pm Western Washington ATV Society Mtg. *Memorial Day*	**26** 7:30pm Auburn Academy ARC Mtg.	**27** 7:00pm Exams @ Redmond - Mark WR7V 881-1088 7:30pm Radio Club of Tacoma Mtg.	**28** 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**29** Special Olympics Summer @ Ft.Lewis, K6DOW 271-5314	**30** Snoqualmie Valley Bike, N7LCG 362-1829 Zero Retries Submission Deadline
31 9:30am VARPA Gen.Mtg. Rotelli Classic Bike @ Seattle, N7LCG 362-1829 Special Olympics Summer @ Ft...						

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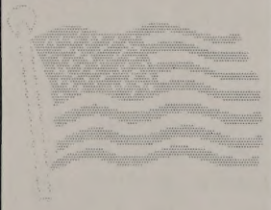
June 1992

Amateur Radio Events - Western Washington & Vicinity

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	**2**	**3**	**4** 7:30pm Issaquah ARC Mtg. 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**5**	**6** 10:00am Boeing Employees ARC Mtg. 10:00am Exams @ North Seattle - Mike W7WHT 282-1438 1:00pm Exams @ Kent - Rick KF7VG 865-7702 Wenatchee Hamfest
7 Beat-the-Bridge Race @ UW, N7LCG 362-1829 10th Annual Metric Bike @ PierceCo, N7LCG 362-1829 Trek Washington Bike, W7AKA 226-4115 (thru 6/13) Wenatchee Hamfest	**8** Coast-to-Coast Bike, KB7HMM 322-4102 (thru 7/25)	**9** 7:00pm Western Washington DX Club Mtg.	**10** 7:30pm Radio Club of Tacoma Mtg.	**11** 7:00pm Exams @ Lynnwood - Jim AA7AZ 745-0347 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**12** 7:00pm Exams @ Seattle - Bob WN7V 788-3129 ARRL NW Div Convention @ Seaside, OR	**13** 8:00am Sea-Tac RG Mtg. 9:00am Exams @ Everett - Loren KK7M 365-2141 10:00am W Seattle ARC Mtg. 10:00am Exams @ Tukwila - Mary W7QGP 523-9117 Boys & Girls Club @ Marymoor, N7LCG 362-1829
14 *Flag Day*  ARRL NW Div Conven...	**15**	**16** 7:00pm Exams @ Auburn - Henry NK7E 474-6145	**17** 7:30pm Cascade RL Mtg.	**18** 7:30pm North Seattle ARC Mtg. 7:30pm Puget ARS Mtg. 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**19** 5:00pm Exams @ Bellingham - Jack K7IWX 738-3129 Seattle-to-Portland Bike, N7SJX 722-0747	**20** 10:00am Mike & Key Club Mtg. 10:00am NAPRA BoD Mtg. 1:00pm Exams @ Renton - Mike WA7UVJ 854-4031 *Summer begins* Velodrama Bike @ Redmond, N7LCG 362-1829
21 *Father's Day*	**22** 7:00pm Western Washington ATV Society Mtg.	**23** 7:30pm Auburn Acadamy ARC Mtg.	**24** 7:00pm Exams @ Redmond - Mark WR7V 881-1088 7:30pm Radio Club of Tacoma Mtg.	**25** 9:00pm - 10:00pm Packet Radio Ragchew 145.310Mhz	**26**	**27** 9:30am Exams @ Bremerton - Dave N7HTK 876-3120 Field Day
28 Field Day	**29**	**30**				

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Please send additions and corrections to Peter Kallio, N7ENT @ N7ENT.WA

NAPRA, the Northwest Amateur Packet Radio Association, is an organization of Amateur Radio Operators dedicated to the growth of the Amateur Packet Radio Network in the Pacific Northwest. Membership is open to all interested individuals. NAPRA's yearly dues are $15.00 and include a subscription to NAPRA's quarterly newsletter, *Zero Retries*.

NAPRA 1991-1992 Board of Directors

President:	Tadd Torborg KA2DEW	@N7FSP	743-6283
Executive Vice-President:	John Painter N0NDO	@N7FSP	
Technical Vice-President:	Scott Cronk N7FSP	@N7FSP	932-6564*
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Director-at-Large:	Steve Hazelett N7HFZ	@N7HFZ	831-6155

**Please call after noon, preferably on weekends.*

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Send Editorial Contributions to:

Peter Kallio N7ENT @ N7ENT.WA
1561 Roland Avenue
Port Orchard, WA 98366-3716

NAPRA reserves the right to edit or reject any items submitted for publication.

The Last Word...

Here it is, the third issue of Zero Retries I've had the pleasure of editing. You'll notice one item about this issue right off, it's thicker! (Sounds like a commercial doesn't it?) There is one other item that may go unnoticed by most. I've gone down another size on the typeface. That alone would have given you 10% more information in the issue. Sorry, still not enough room. Uncle Sam charges 2 units of postage to send anything over about 5 pages. Therefore, I decided to go whole hog and put in the maximum I could for that amount of postage. And, yes, there were STILL items that didn't get published in this issue. However, I didn't want anyone on the Board having a heart attack over the additional costs involved. So only 9 sheets of paper this time.

You'll notice above that there are two new members on the NAPRA Board of Directors. Tadd and John will be filling the positions vacated by N7IPB and AA6ED. Both of them were intimately involved with the major advancements in networking made by the North East Digital Association. I believe that their addition to the board will allow NAPRA to once again become a front-running and forward-moving organization.

I did a little research on Western Washington packet users this evening. On the NAPRA roster there are 111 current members. There may be a few more as I only get updates once a month. There are now 82 users that call my BBS their Home BBS. There are another 70 which check in occasionally but call another BBS home. Would you believe that less than 14% of these 152 individuals are members of NAPRA? The bulk of NAPRA membership lives in the immediate Puget Sound area. My BBS serves that same geographic area. That means that somewhere in the Puget Sound area are about 700 non-NAPRA packet users! There are probably more than this estimate. It does give one an idea of how many users are out there.

Now for the commercial...

For NAPRA to get more members, NAPRA must first show that they have something to offer. This newsletter is my first effort of that demonstration. I urge you to take this newsletter around to your friends who are not members of NAPRA and show it to them. Let them know that NAPRA does have something for them. Send me a note with names and addresses of people who'd like to join and I'll mail them a membership form. Also I'll toss in some other goodies while they last.

With more members there will be additional funds for larger newsletters, which will bring in more members, which will mean more funds, et cetera. We also could help in the growth of the packet network in the area (see WB6VAC's article for more info on this). The more members there are, the more NAPRA can do.

So take some time this month and recruit one (or more) member for NAPRA. In the long run, you'll be glad you did.

73, Pete N7ENT

BRRRAP!